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10/767,727	01/30/2004	Vittorio Accomazzi	14604	6086

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EXAMINER	
RUSH, ERIC	

ART UNIT	PAPER NUMBER
2624	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/767,727	ACCOMAZZI ET AL.	
	Examiner	**Art Unit**	
	ERIC RUSH	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *5 March 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18,27 and 28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18,27 and 28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This action is responsive to the amendments and remarks received 5 March 2009. Claims 2 - 18 and 27 - 28 are currently pending.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1 - 6, 9, 11 - 13, 15 - 18 and 27 - 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mundy et al. U.S. Publication No. 2003/0095692 and further in view of Sheehan et al. U.S. Patent No. 6,106,466.

- With regards to claim 1, Mundy et al. teach an image processing system having a statistical appearance model for interpreting a digital image, the appearance model having at least one model parameter, the system comprising: a multi-dimensional first model object including an associated first statistical relationship and configured for deforming to approximate a shape and texture of a multi-dimensional target object in the digital image, (Mundy et al., Figs. 2 & 4, Page 3 Paragraphs 0024, 0027 - 0028) and a multi-dimensional second model object including an associated second statistical relationship and configured for deforming to approximate the

shape and texture of the target object in the digital image, (Mundy et al., Figs. 2 & 4, Page 3 Paragraphs 0024, 0027 - 0028) the second model object having a shape and texture configuration different from the first model object, wherein each of said first second statistical relationships is configured to guide the valid variations of the respective model object; (Mundy et al., Page 5 Paragraphs 0060 - 0062 and 0066, Page 6 Paragraph 0068, 0070 and Page 7 Paragraphs 0079 - 0084) a search module for applying the first model object to the image for generating a multi-dimensional first output object approximating the shape and texture of the target object and calculating a first model independent error between the first output object and the target object, (Mundy et al., Page 6 Paragraph 0070 and 0074 - 0076 and Page 7 Paragraphs 0079 - 0084) and for applying the second model object to the image for generating a multi-dimensional second output object approximating the shape and texture of the target object and calculating a second model independent error between the second output object and the target object; (Mundy et al., Page 6 Paragraph 0070 and 0074 - 0076 and Page 7 Paragraphs 0079 - 0084) a selection module for comparing the first model independent error with the second model independent error such that one of the output objects with the least significant model independent error is selected; (Mundy et al., Figs. 2 & 4, Page 6 Paragraph 0069 - 0071) and an output module for providing data representing the selected output

object to an output. (Mundy et al., Page 3 Paragraphs 0027 - 0029) Mundy et al. fail to explicitly teach wherein the first and second models are configured to deforming; wherein the first second statistical relationships is configured to guide the valid variations of the respective model object based on a respective set of training images. Sheehan et al. teach wherein the first and second models are configured to deforming; (Sheehan et al., Column 15 Lines 65 – Column 16 Line 25, and *Column 12 Line 43 – Column 13 Line 24, "Each ventricular surface for the images comprising the training data is represented by an abstract three-dimensional triangular mesh...Triangles comprising the abstract mesh are subdivided recursively to produce a smoother final surface having approximately 576 triangular faces in the preferred embodiment")* wherein the first second statistical relationships is configured to guide the valid variations of the respective model object based on a respective set of training images. (Sheehan et al., Figs. 1, 10 & 13, Column 9 Lines 10 - 35, Column 12 Lines 8 - 23) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Mundy et al. with the teachings of Sheehan et al. This modification would have been prompted because Mundy et al. is directed to selecting the optimal model for comparison against acquired medical images. Incorporating the teachings of a deformable model derived from training images would allow for the best selection for comparison and diagnosis of medical images.

- With regards to claim 2, Mundy et al. in view of Sheehan et al. teach the system according to claim 1. Mundy et al. teach wherein the first model object is optimised for identifying a first one of the target object (Mundy et al., Figs. 2 & 4, Page 6 Paragraph 0069 - 0071) and the second model object is optimised for identifying a second one of the target object, (Mundy et al., Figs. 2 & 4, Page 6 Paragraph 0069 - 0071) such that the second target object having an shape and texture configuration different from the first target object. (Mundy et al., Figs. 2 & 4, Page 6 Paragraph 0069 - 0071)

- With regards to claim 3, Mundy et al. in view of Sheehan et al. teach the system according to claim 2. Mundy et al. teach the system further comprising the digital image being one of a set of digital images, (Mundy et al., Page 2 Paragraphs 0021 - 0023) wherein each of the model objects are configured for being applied by the search module to each of the digital images of the set. (Mundy et al., Page 3 Paragraphs 0027 - 0029)

- With regards to claim 4, Mundy et al. in view of Sheehan et al. teach the system according to claim 3. Mundy et al. teach the system further comprising the selection module configured for selecting one of the object

models to represent all the images in the set. (Mundy et al., Figs. 2 &4, Page 3 Paragraphs 0027 - 0029, Page 6 Paragraph 0069 - 0071)

- With regards to claim 5, Mundy et al. in view of Sheehan et al. teach the system according to claim 1. Mundy et al. teach wherein the output is selected from the group comprising an output file for storage in a memory and a user interface. (Mundy et al., Page 2 Paragraphs 0021 - 0023)

- With regards to claim 6, Mundy et al. in view of Sheehan et al. teach the system according to claim 2. Mundy et al. fail to explicitly teach the system further comprising a training module configured for having a set of training images including a plurality of training objects with different appearance configurations, the training module for training the appearance model to have a plurality of the model objects optimised for identifying valid ranges of the shape and texture of respective ones of the target object. Sheehan et al. teach the system further comprising a training module configured for having a set of training images including a plurality of training objects with different appearance configurations, (Sheehan et al., Column 12 Lines 8 - 33) the training module for training the appearance model to have a plurality of the model objects optimised for identifying valid ranges of the shape and texture of respective ones of the target object. (Sheehan et al. Column 13 Lines 55 – 65, Column 17 Lines5 – 13)

- With regards to claim 9, Mundy et al. in view of Sheehan et al. the system according to claim 2. Mundy et al. fail to specifically teach wherein the first and second model objects represent different appearance configurations of the same anatomy of two different two dimensional slices taken from spaced apart locations of an image volume of the anatomy. Sheehan et al. teach wherein the first and second model objects represent different appearance configurations of the same anatomy of two different two dimensional slices taken from spaced apart locations of an image volume of the anatomy. (Sheehan et al., Column 11 Lines 22 – 28, Column 15 Line 65 – Column 16 Line 25) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined teachings of Mundy et al. in view of Sheehan et al. with further teachings of Sheehan et al. This modification would have been prompted because Mundy et al. teach, on Page 4 Paragraphs 0051 - 0055, selection of model parameters based on different planes of image data and teach multiple models for comparison. The modification would have been prompted in order to allow for multiple comparisons against similar model objects in order to select, deform, and compare the optimal model for diagnosis of the acquired images.

- With regards to claim 11, Mundy et al. in view of Sheehan et al. teach the system according to claim 1. Mundy et al. teach the system further comprising a predefined characteristic associated with the model parameter of the selected model object, (Mundy et al., Page 7 Paragraphs 0084 - 0088) the predefined characteristic for aiding a diagnosis of a patient having an anatomy represented by the selected output object. (Mundy et al., Page 7 Paragraphs 0084 - 0088)

- With regards to claim 12, Mundy et al. in view of Sheehan et al. teach the system according to claim 11. Mundy et al. teach wherein the model parameter is partitioned in to a plurality of value regions, (Mundy et al., Table 1, Page 5 Paragraphs 0056 - 0062 and Page 6 Paragraphs 0068, 0071 - 0075) each of the regions assigned one of a plurality of the predefined characteristics. (Mundy et al., Table 1, Page 5 Paragraphs 0056 - 0062 and Page 6 Paragraphs 0068, 0071 - 0075, Page 7 Paragraphs 0084)

- With regards to claim 13, Mundy et al. in view of Sheehan et al. teach the system according to claim 12. Mundy et al. teach wherein the model parameter is selected from the group comprising a shape and texture parameter. (Mundy et al., Page 5 Paragraphs0056 - 0058) Mundy et al. fail to specifically teach a scale parameter and a rotation parameter.

Sheehan et al. teach a scale parameter and a rotation parameter. (Sheehan et al., Column 14 Line 53 – Column 15 Line 10) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined teachings of Mundy et al. in view of Sheehan et al. with further teachings of Sheehan et al. This modification would have been prompted in order to compare medical images taken from different viewpoints and/or sources of varying characteristics. The modification would also allow for comparison among people of varying sizes.

- With regards to claim 15, Mundy et al. in view of Sheehan et al. teach the system according to claim 12. Mundy et al. teach wherein the output module provides to the output the predefined characteristic assigned to the selected output object. (Mundy et al., Page 5 Paragraph 0058 and Page 7 Paragraphs 0084 - 0088)

- With regards to claim 16, Mundy et al. in view of Sheehan et al. teach the system according to claim 12. Mundy et al. fail to explicitly teach the system further comprising a training module configured for assigning the plurality of the predefined characteristics to the model parameter. Sheehan et al. teach the system further comprising a training module configured for assigning the plurality of the predefined characteristics to the model parameter. (Sheehan et al. Column 12 Lines 43 – 61)

- With regards to claim 17, Mundy et al. in view of Sheehan et al. teach the system according to claim 15. Mundy et al. fail to specifically teach the system further comprising a confirmation module for determining if the value of the model parameter assigned to the selected output object is within one of the partitioned regions. Sheehan et al. teach the system further comprising a confirmation module for determining if the value of the model parameter assigned to the selected output object is within one of the partitioned regions. (Sheehan et al. Column 16 Lines 50 - 64)

- With regards to claim 18, Mundy et al. in view of Sheehan et al. teach the system according to claim 17. Mundy et al. fail to explicitly teach wherein the value of the model parameter when outside of all the partitioned value regions indicates the first output object is an invalid approximation of the target object. Sheehan et al. teach wherein the value of the model parameter when outside of all the partitioned value regions indicates the first output object is an invalid approximation of the target object. (Sheehan et al. Column 17 Lines 3 – 13)

- With regards to claim 27, Mundy et al. teach a method for interpreting a digital image with a statistical appearance model, the appearance model having at least one model parameter, the method comprising the steps of:

providing a multi-dimensional first model object including an associated first statistical relationship and configured for deforming to approximate a shape and texture of a multi-dimensional target object in the digital image; (Mundy et al., Figs. 2 & 4, Page 3 Paragraphs 0024, 0027 - 0028) providing a multi-dimensional second model object including an associated second statistical relationship and configured for deforming to approximate the shape and texture of the target object in the digital image, (Mundy et al., Figs. 2 & 4, Page 3 Paragraphs 0024, 0027 - 0028) the second model object having a shape and texture configuration different from the first model object, wherein each of said first and second statistical relationships is configured to guide the valid variations of the respective model object; (Mundy et al., Page 5 Paragraphs 0060 - 0062 and 0066, Page 6 Paragraph 0068, 0070 and Page 7 Paragraphs 0079 - 0084) applying the first model object to the image for generating a multi-dimensional first output object approximating the shape and texture of the target object; (Mundy et al., Page 6 Paragraph 0070 and 0074 - 0076 and Page 7 Paragraphs 0079 - 0084) calculating a first model independent error between the first output object and the target object; (Mundy et al., Page 6 Paragraph 0070 and 0074 - 0076 and Page 7 Paragraphs 0079 - 0084) applying the second model object to the image for generating a multi-dimensional second output object approximating the shape and texture of the target object; (Mundy et al., Page 6 Paragraph 0070 and

0074 - 0076 and Page 7 Paragraphs 0079 - 0084) calculating a second model independent error between the second output object and the target object; (Mundy et al., Page 6 Paragraph 0070 and 0074 - 0076 and Page 7 Paragraphs 0079 - 0084) comparing the first model independent error with the second model independent error such that one of the output objects with the least significant model independent error is selected; (Mundy et al., Figs. 2 & 4, Page 6 Paragraph 0069 - 0071) and providing data representing the selected output object to an output. (Mundy et al., Page 3 Paragraphs 0027 - 0029) Mundy et al. fail to explicitly teach wherein the first and second models are configured to deforming; wherein the first second statistical relationships is configured to guide the valid variations of the respective model object based on a respective set of training images. Sheehan et al. teach wherein the first and second models are configured to deforming; (Sheehan et al., Column 15 Lines 65 – Column 16 Line 25, and *Column 12 Line 43 – Column 13 Line 24, "Each ventricular surface for the images comprising the training data is represented by an abstract three-dimensional triangular mesh...Triangles comprising the abstract mesh are subdivided recursively to produce a smoother final surface having approximately 576 triangular faces in the preferred embodiment")* wherein the first second statistical relationships is configured to guide the valid variations of the respective model object based on a respective set of training images. (Sheehan et al., Figs. 1, 10

& 13, Column 9 Lines 10 - 35, Column 12 Lines 8 - 23) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Mundy et al. with the teachings of Sheehan et al. This modification would have been prompted because Mundy et al. is directed to selecting the optimal model for comparison against acquired medical images. Incorporating the teachings of a deformable model derived from training images would allow for the best selection for comparison and diagnosis of medical images.

- With regards to claim 28, Mundy et al. teach a computer program product for interpreting a digital image using a statistical appearance model, the appearance model having at least one model parameter, the computer program product comprising: a computer readable medium; (Mundy et al., Page 2 Paragraph 0021) an object module stored on the computer readable medium configured for having a multi-dimensional first model object including an associated first statistical relationship and configured for deforming to approximate a shape and texture of a multi-dimensional I target object in the digital image, (Mundy et al., Figs. 2 & 4, Page 2 Paragraph 0021, Page 3 Paragraphs 0024, 0027 - 0028) and a multi-dimensional second model object including an associated second statistical relationship and configured for deforming to approximate the shape and texture of the target object in the digital image; (Mundy et al.,

Figs. 2 & 4, Page 3 Paragraphs 0024, 0027 - 0028) the second model object having a shape and texture configuration different from the first model object, wherein each of said first and second statistical relationships is configured to guide the valid variations of the respective model object; (Mundy et al., Page 5 Paragraphs 0060 - 0062 and 0066, Page 6 Paragraph 0068, 0070 and Page 7 Paragraphs 0079 - 0084) a search module stored on the computer readable medium for applying the first model object to the image for generating a multi-dimensional first output object approximating the shape and texture of the target object and calculating a first model independent error between the first output object and the target object, (Mundy et al., Page 6 Paragraph 0070 and 0074 - 0076 and Page 7 Paragraphs 0079 - 0084) and for applying the second model object to the image for generating a multi-dimensional second output object approximating the shape and texture of the target object and calculating a second model independent error between the second output object and the target object, (Mundy et al., Page 6 Paragraph 0070 and 0074 - 0076 and Page 7 Paragraphs 0079 - 0084) a selection module coupled to the search module for comparing the first model independent error with the second model independent error such that one of the output objects with the least significant model independent error is selected; (Mundy et al., Figs. 2 & 4, Page 6 Paragraph 0069 - 0071) and an output module coupled to the selection module for providing data representing

the selected output object to an output. (Mundy et al., Page 3 Paragraphs 0027 - 0029) Mundy et al. fail to explicitly teach wherein the first and second models are configured to deforming; wherein the first second statistical relationships is configured to guide the valid variations of the respective model object based on a respective set of training images. Sheehan et al. teach wherein the first and second models are configured to deforming; (Sheehan et al., Column 15 Lines 65 – Column 16 Line 25, and *Column 12 Line 43 – Column 13 Line 24, "Each ventricular surface for the images comprising the training data is represented by an abstract three-dimensional triangular mesh...Triangles comprising the abstract mesh are subdivided recursively to produce a smoother final surface having approximately 576 triangular faces in the preferred embodiment")* wherein the first second statistical relationships is configured to guide the valid variations of the respective model object based on a respective set of training images. (Sheehan et al., Figs. 1, 10 & 13, Column 9 Lines 10 - 35, Column 12 Lines 8 - 23) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Mundy et al. with the teachings of Sheehan et al. This modification would have been prompted because Mundy et al. is directed to selecting the optimal model for comparison against acquired medical images. Incorporating the teachings of a deformable model derived from training images would allow for the best selection for comparison and diagnosis of medical images.

4. Claims 7 - 8, 10 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mundy et al. U.S. Publication No. 2003/0095692 in view of Sheehan et al. U.S. Patent No. 6,106,466 as applied to claim 1 above, and further in view of Steven C. Mitchell, Boudewijn P.F. Lelieveldt, Hans G. Bosch, Johan H.C. Reiber, and Milan Sonka, "Disease Characterization of Active Appearance Model Coefficients", MEDICAL IMAGING 2003.IMAGE PROCESSING 17-20 FEB. 2003 SAN DIEGO, CA, USA, vol. 5032, 17 February 2003(2003-02-17), pages 949-957, Proceedings of the SPIE - The International Society for Optical Engineering SPIE-Int. Soc. Opt. Eng USA.

- With regards to claim 7, Mundy et al. in view of Sheehan et al. teach the system according to claim 2. Mundy et al. fail to teach wherein the appearance model is an active appearance model. Mitchell et al. teach wherein the appearance model is an active appearance model. (Mitchell et al., Section 1 Paragraph 2 – Paragraph 3) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined teachings of Mundy et al. in view of Sheehan et al. with the teachings of Mitchell et al. This modification would have been prompted because Active appearance models allow for the expected size, shape, and appearance variations in objects of interest.

- With regards to claim 8, Mundy et al. in view of Sheehan et al. teach the system according to claim 2. Mundy et al. fail to teach wherein the first and second model objects represent different pathology types of patient anatomy. Mitchell et al. teach wherein the first and second model objects represent different pathology types of anatomy. (Mitchell et al. Section 1.1) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined teachings of Mundy et al. in view of Sheehan et al. with the teachings of Mitchell et al. This modification would have been prompted because Sheehan et al. suggest using their invention for a "plurality of three-dimensional reconstructions of the left ventricles in a population of hearts exhibiting a wide variety of types and severity of heart disease..." (Sheehan et al. Column 12 Lines 8 – 23) This modification would allow for the user to more quickly diagnose patients accurately.

- With regards to claim 10, Mundy et al. in view of Sheehan et al. and further in view of Mitchell et al. teach the system according to claim 8. Mundy et al. fail to teach wherein the two different pathology types are represented by two different training objects in a set of training images. Mitchell et al. teach wherein the two different pathology types are represented by two different training objects in a set of training images. (Mitchell et al., Section 1.1 Paragraph 1 and Section 3 Paragraph 1)

- With regards to claim 14, Mundy et al. in view of Sheehan et al. teach the system according to claim 12. Mundy et al. fail to teach wherein at least two of the predefined characteristics represent different pathology types of the anatomy. Mitchell et al. teach wherein at least two of the predefined characteristics represent different pathology types of the anatomy. (Mitchell et al. Section 1.1 Paragraph 1) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined teachings of Mundy et al. in view of Sheehan et al. with the teachings of Mitchell et al. This modification would have been prompted in order to allow for weights to be applied to these characteristics, which would therefore help a user more accurately diagnose patients quickly, accurately, and effectively with the aid of the systems.

Response to Arguments

5. Applicant's arguments with respect to claims 1 and 27 - 28 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ERIC RUSH whose telephone number is (571)270-3017. The examiner can normally be reached on 7:30AM - 5:00PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on (571) 272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew C Bella/
Supervisory Patent Examiner, Art Unit 2624

/E. R./
Examiner, Art Unit 2624